What is Claimed is:

1. A method of treating a substrate surface comprising copper or a copper alloy, the method comprising:

applying to the substrate surface a composition comprising:

one or more chelating agents;

one or more pH adjusting agents to produce a pH between about 3 and about 11; and

deionized water; and then

applying a corrosion inhibitor solution.

2. The method according to claim 1, further comprising treating the substrate surface with a corrosion inhibitor solution prior to treating the substrate surface with the composition.

3. The method according to claim 2, wherein the corrosion inhibitor solution comprises between about 0.01 wt.% and about 0.50 wt.% corrosion inhibitor and deionized water.

4. The method according to claim 3, wherein the corrosion inhibitor is selected from the group of benzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

5. The method according to claim 1, wherein the one or more chelating agents comprise an acid, a base, or a combination thereof.

6. The method according to claim 5, wherein the one or more chelating agents comprise an acid having a concentration of up to about 40 wt.% of the composition.

7. The method according to claim 6, wherein the acid is a carboxylic acid having one or more acid groups.

8. The method according to claim 7, wherein the acid is selected from the group of acetic acid, citric acid, maleic acid, and combinations thereof.

9. The method according to claim 1, wherein the one or more chelating agents comprise a base having a concentration up to about 5 wt.% of the composition.

10. The method according to claim 1, wherein the base comprises between about 0.5 wt.% and about 3 wt.% of the composition.

11. The method according to claim 9, wherein the base is selected from the group of ammonium hydroxide, ammonium hydroxide derivatives, amines, and combinations thereof.

12. The method according to claim 1, wherein the composition further comprises a corrosion inhibitor.

13. The method according to claim 12, wherein the corrosion inhibitor comprises between about 0.01 wt.% and about 0.50 wt.% of the composition.

14. The method according to claim 12, wherein the corrosion inhibitor is selected from the group of benzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

15. The method according to claim 1, wherein the composition comprises up to about 40 wt.% citric acid, up to about 5 wt.% ammonium hydroxide, the remainder deionized water.

16. The method according to claim 1, wherein the composition has a pH between about 4 and about 5 and comprises between about 5 wt.% and about 30 wt.% citric acid, between about 0.5 wt.% and about 3.0 wt.% ammonium hydroxide.

17. The method according to claim 2, wherein the corrosion inhibitor solution is applied prior to treating the substrate surface with the composition for between about 3 and about 10 seconds.

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18. The method according to claim 1, wherein the composition is applied between about 10 and about 20 seconds.

19. The method according to claim 1, wherein the composition further comprises a reducing agent.

20. The method according to claim 19, wherein the reducing agent comprises between about 0.01 wt.% and about 20 wt.% of the composition.

21. The method according to claim 19, wherein the reducing agent is selected from the group of hydroxylamine, glucose, sulfothionate, potassium iodide, and combinations thereof.

22. The method according to claim 1, wherein the corrosion inhibitor solution comprises between about 0.01 wt.% and about 0.50 wt.% corrosion inhibitor and deionized water .

23. The method according to claim 22, wherein the corrosion inhibitor is selected from the group of benzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

24. The method according to claim 22, wherein the corrosion inhibitor solution is applied between about 3 and about 10 seconds.

25. The method according to claim 1, wherein the one or more pH adjusting agents are selected from the group of a non-oxidating inorganic acid, a non-oxidating organic acid, a non-oxidating inorganic base, a non-oxidating organic base, and combinations thereof.

26. The method according to claim 1, wherein the one or more pH adjusting agents comprise an acidic chelating agent, a basic chelating agent or a combination thereof.

27. A method of planarizing a substrate surface containing:

an dielectric layer having an upper surface and at least one opening;

a barrier layer lining the opening and the upper surface of the dielectric layer; and

copper or a copper alloy filling the opening and on the dielectric layer;

the method comprising:

removing the copper or copper alloy layer and the barrier leaving an exposed substrate surface comprising copper or copper alloy in the opening; and

treating the exposed substrate surface comprising copper or the copper alloy by applying thereto a composition comprising one or more chelating agents, one or more pH adjusting agents to produce a pH between about 3 and about 11, and deionized water;

and then applying a corrosion inhibitor solution..

28. The method according to claim 27, further comprising removing the barrier layer after removing the copper or copper alloy layer and prior to chemically treating the exposed substrate surface.

29. The method according to claim 27, wherein removing the copper or the copper alloy layer comprises chemical-mechanical polishing (CMP) the copper or the copper alloy layer.

30. The method according to claim 29, wherein the method comprises:

removing the copper or copper alloy layer and stopping on the barrier layer;

removing the barrier layer and leaving the exposed substrate surface comprising copper or copper alloy features.

31. The method according to claim 27, wherein:

the dielectric layer comprises a silicon oxide; and

the barrier layer comprises tantalum (Ta) or tantalum nitride (TaN).

32. The method according to claim 27, wherein the method comprises chemically treating the exposed substrate surface comprising copper or the copper alloy layer to

remove a portion of the substrate surface of the copper or copper alloy or to remove corrosion stains from the copper or copper alloy substrate surface.

33. The method according to claim 32, wherein the method comprises chemically removing up to about 50Å from the exposed substrate surface comprising copper or the copper alloy.

34. The method according to claim 27, further comprising treating the substrate surface with a corrosion inhibitor solution prior to applying the composition .

35. The method according to claim 27, wherein the composition comprises deionized water, citric acid and ammonium hydroxide.

36. The method according to claim 27, wherein the method comprises:

mounting the substrate on a carrier in a CMP apparatus;

CMP the substrate using a polishing pad;

performing the initial treating step;

applying the composition; and

applying the corrosion inhibitor solution while separating the substrate from the polishing pad.

37. The method according to claim 34, wherein the corrosion inhibitor solution comprises between about 0.01 wt.% and about 0.50 wt.% corrosion inhibitor and deionized water.

38. The method according to claim 37, wherein the corrosion inhibitor is selected from the group of benzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

39. The method according to claim 27, wherein the one or more chelating agents comprise an acid, a base, or a combination thereof.

40. The method according to claim 39, wherein the one or more chelating agents comprise an acid having a concentration of up to about 40 wt.% of the composition.

41. The method according to claim 40, wherein the acid is a carboxylic acid having one or more acid groups.

42. The method according to claim 41, wherein the acid is selected from the group of acetic acid, citric acid, maleic acid, and combinations thereof.

43. The method according to claim 27, wherein the base comprises up to about 5 wt.% of the composition.

44. The method according to claim 43, wherein the base comprises between about 0.5 wt.% and about 3 wt.% of the composition.

45. The method according to claim 43, wherein the base is selected from the group of ammonium hydroxide, ammonium hydroxide derivatives, amines, and combinations thereof.

46. The method according to claim 27, wherein the composition further comprises a corrosion inhibitor.

47. The method according to claim 46, wherein the corrosion inhibitor comprises between about 0.01 wt.% and about 0.50 wt.% of the composition.

48. The method according to claim 46, wherein the corrosion inhibitor is selected from the group of benzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

49. The method according to claim 27, wherein the composition comprises up to about 40 wt.% citric acid, up to about 5 wt.% ammonium hydroxide, and the remainder of the composition comprises deionized water.

50. The method according to claim 49, wherein the composition has a pH between about 4 and about 5 and comprises between about 5 wt.% and about 30 wt.% citric acid, between about 0.5 and about 3.0 wt.% ammonium hydroxide.

51. The method according to claim 34, wherein the corrosion inhibitor solution is applied between about 3 and about 10 seconds prior to treating the substrate surface with the composition.

52. The method according to claim 27, wherein the composition is applied between about 10 and about 20 seconds.

53. The method according to claim 34, wherein the corrosion inhibitor solution comprises between about 0.01 wt.% and about 0.50 wt.% corrosion inhibitor and deionized water.

54. The method according to claim 34, wherein the corrosion inhibitor is selected from the group of benzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

55. The method according to claim 27, wherein the corrosion inhibitor solution is applied between about 3 and about 10 seconds.

56. The method according to claim 27, wherein the pH adjusting agent is selected from the group of a non-oxidating inorganic acid, a non-oxidating organic acid, a non-oxidating inorganic base, a non-oxidating organic base, and combinations thereof.

57. The method according to claim 27, wherein the one or more pH adjusting agents comprise an acidic chelating agent, a basic chelating agent or a combination thereof.

58. The method according to claim 27, wherein the composition further comprises a reducing agent.

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59. The method according to claim 58, wherein the reducing agent comprises between about 0.01 wt.% and about 20 wt.% of the composition.

60. The method according to claim 58, wherein the reducing agent is selected from the group of hydroxylamine, glucose, sulfothionate, potassium iodide, and combinations thereof.

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